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APPROVAL SIGNATURES		DATE
Greg Blaney (original signature on file)	Management System Representative	09/13/2005

REVISION HISTORY			
Rev No.	Description of Change	Author	Effective Date
Basic	Initial Release	John Griggs IT/204	05/01/98
A	Section 2.0,3.0,5.0 And 6.0 were modified and added flow chart.	Siamak Yassini IT/332	07/23/98
B	Quality Record - format change, modified section 2.2	Siamak Yassini IT/332	08/26/98
C	Consolidated forms	Siamak Yassini IT/332	01/28/99
D	References to Ames Quality Manual replaced with references to IV&V Facility Quality Manual Updated Section 5.1.4 & 6.1.2	Siamak Yassini IT/332	09/10/99
E	Adding Track wise automated tool section 3.3	Siamak Yassini IT/332	03/30/00
F	Format and Number changes; Delete Reference to Ames Research Center	Griggs	12/06/00
G	Significant re-write to accommodate current process	Griggs	04/03/01
H	Revise severity codes to define "immediate", also require corrective action plans	Griggs	09/13/01
I	Revise to include lower tier action tracking systems, and to modify the automated flow to allow staff to enter CAR/PARs	Griggs	06/06/02


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REVISION HISTORY (CONTINUED)			
Rev No.	Description of Change	Author	Effective Date
J	Clarify initial assignment of CAR/PAR to Management Representative; also clarify use of IVV Form 1005 as backup to Trackwise	Griggs	10/21/02
K	Updated process flow to current flow practices; verbiage updated to meet new acronym and system references (IMS)	Kesecker	04/28/2004
L	Updated reference documents to add form 1005, added section numbers in section 4.1 flow and updated section 8	Ferguson	02/23/2005
M	Add corrective action plan to Section 6.4	Ferguson	09/26/2005

REFERENCE DOCUMENTS	
Document Number	Document Title
IVV QM	IV&V Facility Quality Manual
IVV 16	Control of Quality Records
NPR 1441.1	NASA Records Retention Schedules
Form 1005	Finding Report

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1.0 Purpose

The purpose of this system level procedure (SLP) is to define the corrective and preventive action processes at the NASA IV&V Facility that tracks the identification and resolution of product and process nonconformities and customer complaints.

The processes include the formal Corrective and Preventive Action System (CAR/PAR System) and three lower-tier action tracking systems that support internal objectives.

2.0 Scope

This SLP applies to all nonconforming or potentially nonconforming processes, products, and services pursuant to the NASA IV&V Facility Management System (IMS).

3.0 Definitions and Acronyms

3.1 Assignee

The Assignee is the person assigned action for a corrective action request (CAR) or preventive action request (PAR) by the IMS Representative (MSR).

3.2 Corrective Action

A corrective action is an action taken to eliminate the cause(s) of an existing nonconformance, defect, or other undesirable situation with a product or process in order to prevent recurrence.


3.3 Corrective Action Plan

A Corrective Action Plan is a plan constructed to describe the course of action taken to resolve a CAR/PAR in the CAR/PAR System.

3.4 Corrective and Preventive Action Management Status Report

The Corrective and Preventive Action Management Status Report is a report prepared by the Corrective and Preventive Action System Manager (CAR/PAR Manager). The report describes CARs and PARs in the

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CAR/PAR System, the Assignee, the due date, and the status of each CAR/PAR for a specified period.

3.5 Corrective and Preventive Action System (CAR/PAR System)

The CAR/PAR System is a database used to track and document the NASA IV&V Facility's CARs and PARs. In the context of this SLP, the CAR/PAR System is also known as TrackWise.

3.6 Corrective and Preventive Action System Manager (CAR/PAR Manager)

The CAR/PAR Manager is a NASA IV&V Facility civil service employee designated by Facility Management to manage the CAR/PAR System.

3.7 Corrective or Preventive Action Request (CAR/PAR)

A CAR/PAR is the documentation of a nonconformance or potential nonconformance, respectively. CARs/PARs can result from multiple activities or come from multiple sources (e.g., internal or external audits, actions from Facility Management's review of the IMS, customer complaints, etc.).

3.8 Director


The Director is a NASA IV&V Facility civil service employee who manages the NASA IV&V Program and leads the operations of the NASA IV&V Facility.

3.9 Facility Management

Facility Management is a group of NASA IV&V Facility civil service employees who hold official management positions at the NASA IV&V Facility.

3.10 IMS Representative (MSR)

The MSR is a NASA IV&V Facility civil service employee designated by Facility Management responsible for the establishment, implementation, and maintenance of the IMS.

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3.11 Initiator

The Initiator is any NASA IV&V Facility personnel working within the IMS who originates a CAR/PAR for change or improvement in the IMS.

3.12 Lower-Tier Action Tracking

Administrative, Project Management, and Research Management Action Tracking Systems not requiring NASA IV&V Facility-wide access are used for the internal process of tracking actions, including delivery dates, etc. These systems support the CAR/PAR System, and significant issues are upgraded into the CAR/PAR System. Procedures for these systems reside with the owner.

3.12.1 Administrative Action Tracking System

The Administrative Action Tracking System is controlled by the Director's Office, and tracks administrative actions.


3.12.2 Project Management Action Tracking System

The Project Management Action Tracking System is internal to the Project Management structure, tracking actions from the Project Manager's meetings. In the Project Manager's meetings, notes are taken and stored on the NASA IV&V Facility's shared drive. Recorded in those notes are Action Items (AIs) assigned during these meetings. Often, the AIs generated are simple, one-time items that are taken care of and closed. AIs from previous meetings are reviewed and, if not completed, are recorded once again in the meeting minutes, appearing weekly until the action is closed. If an AI is deemed systemic to the NASA IV&V Facility or can affect the quality of the NASA IV&V Facility's products, it will be recorded in the CAR/PAR System rather than as an AI.

3.12.3 Research Management Action Tracking System

The Research Management group maintains an informal action item-tracking database within the Center Initiative Management (CIM) Tool. The primary purpose of this database is to track the progress of day-to-day assignments and actions. In that context, it supplements the CAR/PAR System. Items of significance to the

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entire NASA IV&V Facility staff must still be entered into the CAR/PAR System.

3.13 Nonconformance

A nonconformance represents a lack of compliance with a specified process or procedure associated with the IMS, a nonconforming product, or a deficiency in the IMS itself. For the purposes of this SLP, nonconformities are categorized into three levels of severity.

3.13.1 Major Nonconformance

A major nonconformance is characterized by one or more of the following:

- An IMS deficiency
- An issued nonconforming product has a significant effect on customer success, safety, or resources
- A lack of documented procedures
- A documented procedure is not being implemented consistently
- A series of minor nonconformities indicating an overall IMS deficiency that has an adverse effect upon overall product quality

3.13.2 Minor Nonconformance

A minor nonconformance is characterized by a defined system with an acceptable level of implementation having one or more of the following:


- Minor discrepancies or lapses in discipline
- An issued nonconforming product has little or no effect on the customer

3.13.3 Observation

One or more of the following characterize an observation:

- An issue noted by an auditor that may lead to a major or minor nonconformance if not corrected

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- A suggestion to improve a process
- Editorial corrections to a procedure (e.g., typing errors, spelling errors, etc.)

3.14 Preventive Action

A preventive action is an action determined by the recognition of issues that could lead to nonconformities, or the analysis of data to detect trends and identify causes that may result in future nonconformities.

3.15 Product

A product is the result of activities or processes, which may include service, software, analysis reports, or a combination of these.

3.16 Quarterly Management Review (QMR)

The QMR is a Facility Management-performed quarterly review of the suitability, adequacy, and effectiveness of the IMS. The QMR also covers the CAR/PAR System and the Internal and External Assessment Audit Programs, and NASA IV&V Facility Metrics Program.


3.17 TrackWise

TrackWise is the NASA IV&V Facility's action tracking system. In the context of this SLP, TrackWise is also known as the CAR/PAR System.

3.18 Acronyms

AI	Action Item
CAR	Corrective Action Request
CIM	Center Initiative Management
IMS	NASA IV&V Facility Management System
MSR	IMS Representative
PAR	Preventive Action Request
QMR	Quarterly Management Review
SLP	System Level Procedure

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4.0 Flowchart

The process flow for the CAR/PAR System is depicted in the Figure 1, Corrective and Preventive Action System, on the following page. The flowchart describes the responsible persons and actions for each step of the CAR/PAR System, from origination through closure.



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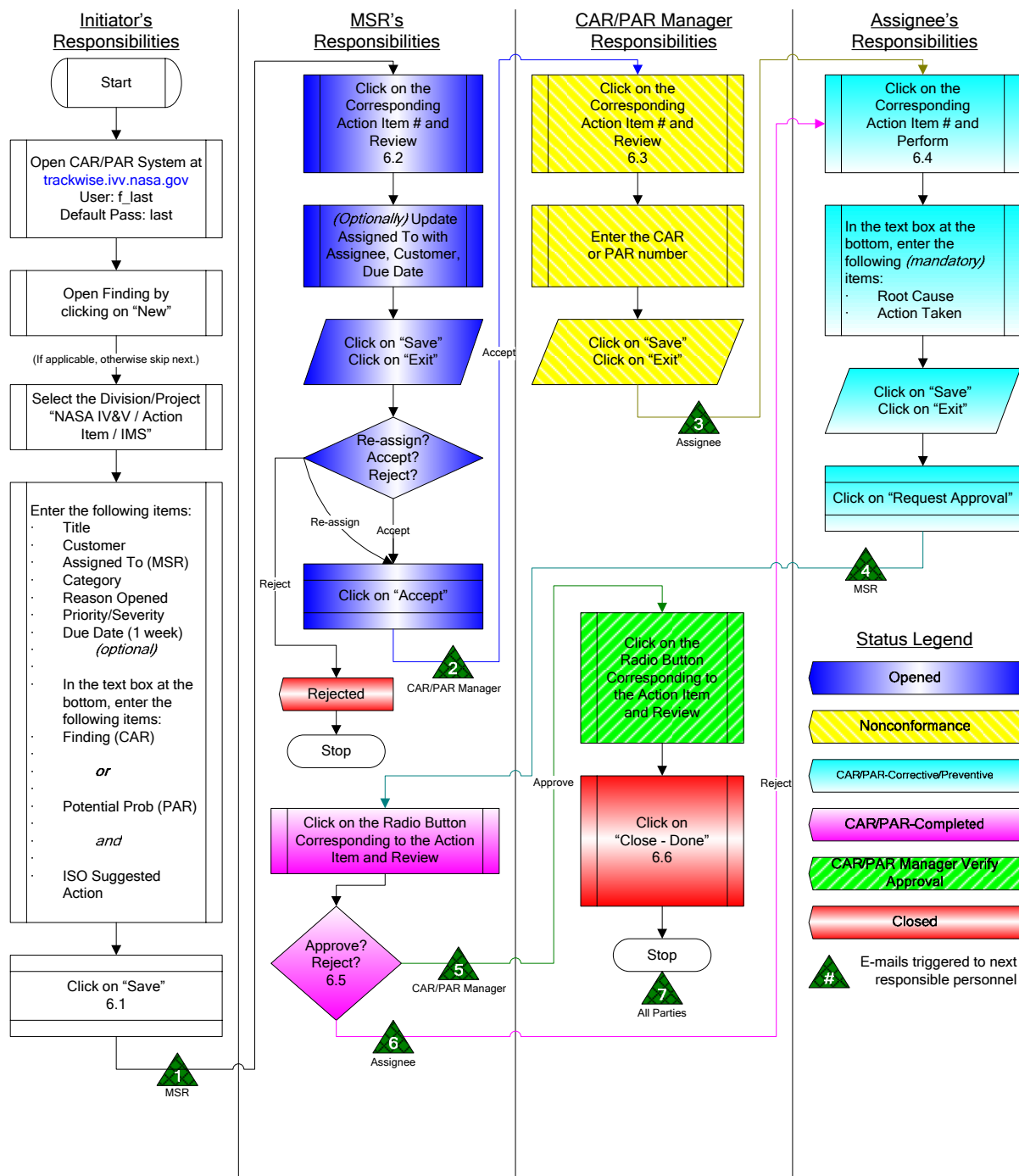



Figure 1 - Corrective and Preventive Action System

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5.0 Responsibilities

5.1 Assignee

When a CAR/PAR is submitted and assigned to him or her by the MSR, the Assignee shall:

- Determine and document the root cause(s) of the nonconformance.
- Identify, document, and implement required changes to address the CAR/PAR.
- Ensure that all applicable data, including incorporated changes to operating practices, are documented.
- Submit responses in a timely manner to the CAR/PAR Manager.
- Request line management support when required for timely response and closure.
- Prepare a Corrective Action Plan if necessary.

5.2 Corrective and Preventive Action System Manager (CAR/PAR Manager)


The CAR/PAR Manager shall:

- Establish and maintain the CAR/PAR System.
- Administer control of the CAR/PAR System.
- Resolve conflicts and/or misunderstandings of required actions.
- Prepare the Corrective and Preventive Action Management Status Report.

5.3 IMS Representative (MSR)

The MSR shall:

- Ensure the CAR/PAR System is established, administered, and utilized to maintain IMS process improvement.
- Ensure CARs/PARs are assigned to appropriate personnel with due dates identified.
- Ensure timely responses to CARs/PARs by assigned personnel.

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5.4 NASA IV&V Facility Personnel

Any NASA IV&V Facility personnel subject to the scope of the IMS shall initiate a CAR/PAR if a nonconformance or a potential nonconformance is observed within the IMS.

6.0 Procedure

A CAR/PAR is originated whenever a current or potential nonconformance warrants a root cause analysis and corrective or preventive action because the nonconformance has or may have an effect on the quality of the products or services produced by the NASA IV&V Facility.


6.1 Initiate a Corrective or Preventive Action

Any NASA IV&V Facility personnel subject to the IMS who observes a nonconformance or potential nonconformance shall initiate a CAR/PAR.

- The Initiator shall create the CAR/PAR by entering the following required information (except where noted) into the CAR/PAR system:
 - Title
 - Customer
 - Assigned To (*MSR*)
 - Category
 - Reason Opened
 - Priority/Severity
 - Due Date (1 week) (*optional*)
- The Initiator shall then save the CAR/PAR in the CAR/PAR System. The CAR/PAR System will notify the MSR for evaluation and assignment. (Note: using the “Save+” button performs the same function as the “Save” button, but leaves the CAR/PAR System open and ready to accept another CAR/PAR.)

Note: Form 1005, Finding Report, may be used to initiate a CAR/PAR if the CAR/PAR System is not available. In that case, the Initiator shall forward the completed Finding Report to the CAR/PAR Manager for action. The CAR/PAR Manager will enter this information into the CAR/PAR System when available and discard the completed Finding Report.

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6.2 CAR/PAR Evaluation and Assignment

Based upon the data submitted, the MSR shall either accept the CAR/PAR and designate an Assignee for the investigation and resolution action or close the CAR/PAR because it is not a nonconformance.

- If the CAR/PAR is valid, the MSR shall designate an Assignee for the investigation and resolution of the CAR/PAR, along with an associated due date, and indicate acceptance in the CAR/PAR System. The CAR/PAR System will then notify the CAR/PAR Manager that an accepted CAR/PAR needs to be processed.
- If the CAR/PAR is determined to be invalid, the MSR shall indicate rejection in the CAR/PAR System. This will close the CAR/PAR and no further action is required.

6.3 Logging and Tracking of CAR/PAR


The CAR/PAR Manager will perform the following actions upon notification of an accepted CAR/PAR:

- Assign a CAR/PAR number.
- Indicate whether it is a corrective or preventive action.
- Save the CAR/PAR in the CAR/PAR System.

6.4 Processing of CAR/PAR

The Assignee shall perform the following actions upon notification of an assigned CAR/PAR:

- Investigate, document, and implement the required corrective and/or preventive actions in the IMS processes or procedures.
 - A CAR with a minor nonconformance or observation, which is expected to require over thirty days to resolve and implement, requires a Corrective Action Plan to be submitted and approved by the MSR within thirty days of assignment, and filed within the CAR/PAR System.
 - A CAR with a major nonconformance requires a completed corrective action or an approved Corrective Action Plan within two weeks.

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- A PAR will be assigned an appropriate due date by the MSR when assigned.
- Enter “Root Cause” information into the CAR/PAR System.
- Enter “Action Taken” information into the CAR/PAR System.
- Enter, optionally, “Objective Evidence” showing resolution of the nonconformance into CAR/PAR System.
- Save the CAR/PAR in CAR/PAR System.
- Click on “Request Approval” in CAR/PAR System. This will submit the completed CAR/PAR to the MSR for acceptance or rejection of the resolution implemented by the Assignee.

6.5 MSR Review of CAR/PAR Resolution

The MSR shall determine if the resolution actions taken by the Assignee are acceptable to eliminate or preclude the nonconformance identified in the CAR/PAR.

6.5.1 Acceptable CAR/PAR Resolution


If the Assignee's actions taken in response to the CAR/PAR are adequate and acceptable to the MSR, the MSR will approve the resolution in the CAR/PAR System. This will cause the system to submit the CAR/PAR to the CAR/PAR Manager for closure.

6.5.2 Unacceptable CAR/PAR Resolution

If the Assignee's actions taken in response to the CAR/PAR are not adequate or acceptable, the CAR/PAR will be rejected and returned to the Assignee to work again. The Assignee must again go through the request for approval process after re-working the CAR/PAR.

6.6 Closure of the CAR/PAR

After receiving notification that the CAR/PAR resolution is acceptable, the CAR/PAR Manager shall close the CAR/PAR in the CAR/PAR System by clicking on “Close – Done”.

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7.0 Metrics

The CAR/PAR Manager shall report metrics at the Quarterly Management Review (QMR). Such metrics may include the following:

- Total number of CARs/PARs open
- Number of CARs/PARs opened during reporting period
- Number of CARs/PARs closed during reporting period
- Number of open CARs/PARs where no action was taken during the reporting period
- Age of all open CARs/PARs

8.0 Records

The following records are generated and filed in accordance with this SLP and IVV 16, Control of Quality Records, and in reference to NPR 1441.1, NASA Records Retention Schedules.

Document Name and Identification Number	User Responsible for Record Retention	Retention Requirement	Location
CAR/PAR System	CAR/PAR Manager	Five years	Shared Network Drive